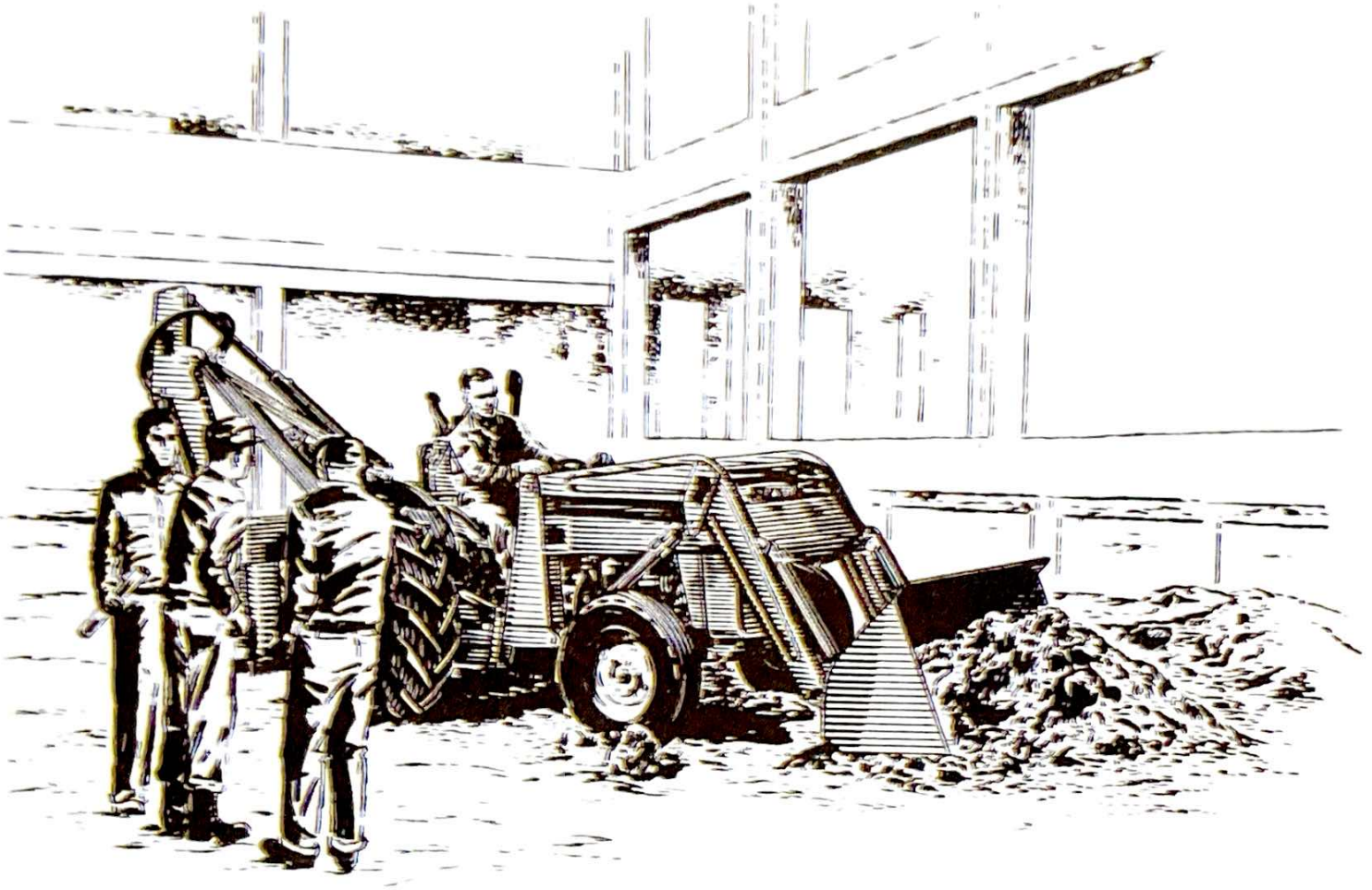
MASSEY-FERGUSON

MF 99 & MF 102
LOADERS

Owner's Manual

Form No. 690 379 M3



Take Your Time

IS TIME SO IMPORTANT THAT YOU'LL FORGET TO SHUT OFF AN IMPLEMENT WHEN IT HAS TO BE OILED OR ADJUSTED? INDUSTRIAL AND FARM ACCIDENTS ARE CAUSED BY CARELESSNESS AND LACK OF THOUGHT. NEXT TIME YOU'RE TEMPTED TO HURRY, THINK OF US. WE ALL FEEL THAT ACCIDENTS WON'T HAPPEN TO US, BUT THEY DO, NO MATTER HOW MUCH WE WISH THEY DIDN'T.

INDUSTRIAL AND FARM EQUIPMENT MANUFACTURERS PLAN SAFETY AND EFFICIENCY INTO THE MACHINERY YOU OPERATE. THEIR PLANNING, YES, EVEN OUR OWN PERSONAL PLANS, WON'T MEAN A THING IF YOU ACT CARELESSLY. THE MACHINE YOU ARE OPERATING IS ONLY AS SAFE AS THE MAN WHO OPERATES IT. NO MATTER WHAT WE SAY OR DO THE BEST SAFETY DEVICE IS YOU, REMEMBER, TAKE TIME TO BE SAFE.

GREEN CROSS FOR SAFETY

NATIONAL SAFETY COUNCIL

Price $.50

We are pleased to add your name

To our list of owners of this new Massey-Ferguson machine. We hope that it will give you the utmost satisfaction.

This machine is one of a full line of farm and industrial equipment, manufactured by Massey-Ferguson, which includes the great tractor line with the exclusive Hydraulic system and the world-famous Massey-Ferguson line of self-propelled combines.

The world-wide preference for Massey-Ferguson products is the result of internationally recognized leadership in engineering and precision of manufacturing in every one of our 22 factories in Canada, United States, Great Britain, France, Germany and Australia.

We are proud of the wonderful reputation for efficiency and dependability that has been earned by the products of these factories.

Your dealer is one of over 10,000 business men in the great M-F dealer organization who are pledged to uphold the Massey-Ferguson tradition of service to customers.

Massey-Ferguson

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SERIAL NUMBERS ARE IMPORTANT

It is of utmost importance that you refer to the serial number when ordering parts, attachments or requesting service. Adherence to this policy will insure prompt service and will eliminate confusion and time consuming delays.

Loader serial number is located on the outside of the non-reservoir side frame.

MODEL NO. _____

SERIAL NO. _____

Massey-Ferguson reserves the right to make changes or add improvements at any time without incurring any obligation to make such changes on machines sold previously.

PERIODIC MAINTENANCE

Your MF Loader is designed to match the power and performance of your tractor. It is built of the finest materials available and is a product of well known manufacturers whose high technical skills, modern manufacturing facilities and experience have made them a leader in the field. With proper care and maintenance, it should give you many years of dependable service.

In order to help you become familiar with your MF Loader, we have prepared this manual. It contains Operating and Service Instructions. Read these instructions carefully. Your loader deserves the best of care, care that only you can provide.

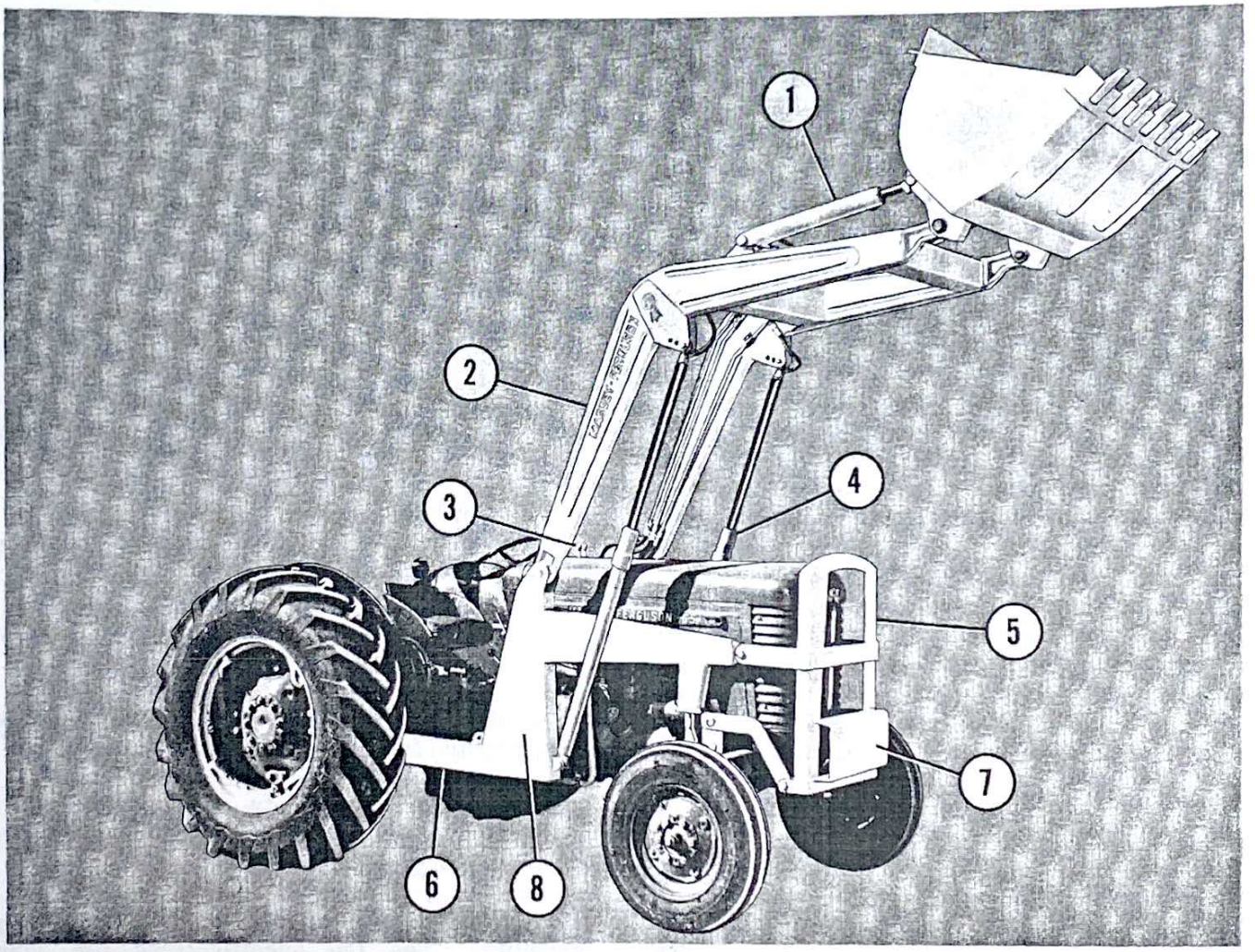


Fig. 1

1. Dump Cylinder
2. Lift Arms
3. Control Valve
4. Lift Cylinder
5. Bumper
6. Side Frame
7. Pump
8. Oil Reservoir

Stop trouble before it starts. The life of your MF Loader depends upon a sound program of preventive maintenance. A suggested maintenance program is listed below.

1. Check and tighten all mounting bolts.

2. Check for loss of cotter keys and linch pins.

3. Check cylinders, pump, valve and hose connections for fluid leaks.

4. Lubricate the grease zerks every day. The grease fittings are located on the bucket end of the dump cylinders and at the pivot pins of the lift arms.

5. Keep the unit clean and repaint chipped surfaces.

6. Check oil level in reservoir. Add oil when the level drops below the "L" mark on dipstick. Use only recommended hydraulic oil. See "Hydraulic Oil".

7. Clean air cleaner and breather with kerosene or distillate every 60 hours or more often if operating in extremely dirty or dusty conditions.

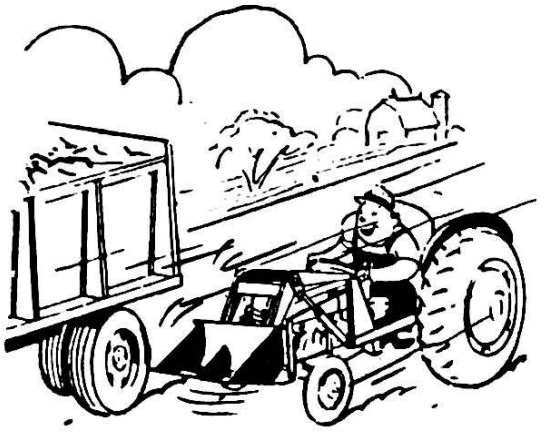
8. Clean filter screen with kerosene or distillate after first 10 to 15 hours of operation. Thereafter, every 60 hours. Replace cartridge every 200 hours on MF 102 Loader.

9. Check hoses for twists, kinks or binding throughout working range of loader.

OPERATION

Use of the twin finger tip controls to the highest efficiency will be understood by the operator after a short period of practice. Operator should release the lever before extending the cylinders full length. After cylinders hit full length, the relief (safety) valve opens up. When this occurs, a "squealing noise" is quite plainly heard. Do not allow the machine to stay in this position for long periods. This squealing signal is a safety factor. Continued operation in this position lowers efficiency of your pump, because of excessive heating.

1. Lift arms are raised by pulling back on left-hand control lever. If necessary, work lever back and forth until air is bled from system.



Do not be the direct cause of a traffic jam. Move over to the shoulder of road if possible and allow traffic to move on. Remember the life you save may be your own.

2. Lever returns automatically to neutral when released. In lowering lift arms slowly, the valve control lever is pushed only slightly forward. Notice that more tension is encountered as you push the lever forward a short distance. For faster lowering, push the lever farther forward under the heavier tension. The drop of the loader is speeded as the release port is opened.

CAUTION: Do not use the fast drop when bucket is loaded. The slow drop is always used for lowering the loaded bucket.

3. Use the right-hand lever to set bucket in proper pitch for loading, digging or dumping.

4. For maximum safety, operate your loader at moderate engine speeds. You will gain speed and efficiency with experience.

5. Never exceed the recommended lifting capacity. See the specifications for your loader, Pages 12 and 13.

6. Do not permit the loaded bucket to remain in an elevated position any longer than necessary.

7. Do not operate your loader with the relief valve set in excess of the recommended pressure of 2150 PSI (Pounds per Square Inch). Operating with a pressure setting in excess of 2150 PSI may cause unnecessary wear to the entire machine.

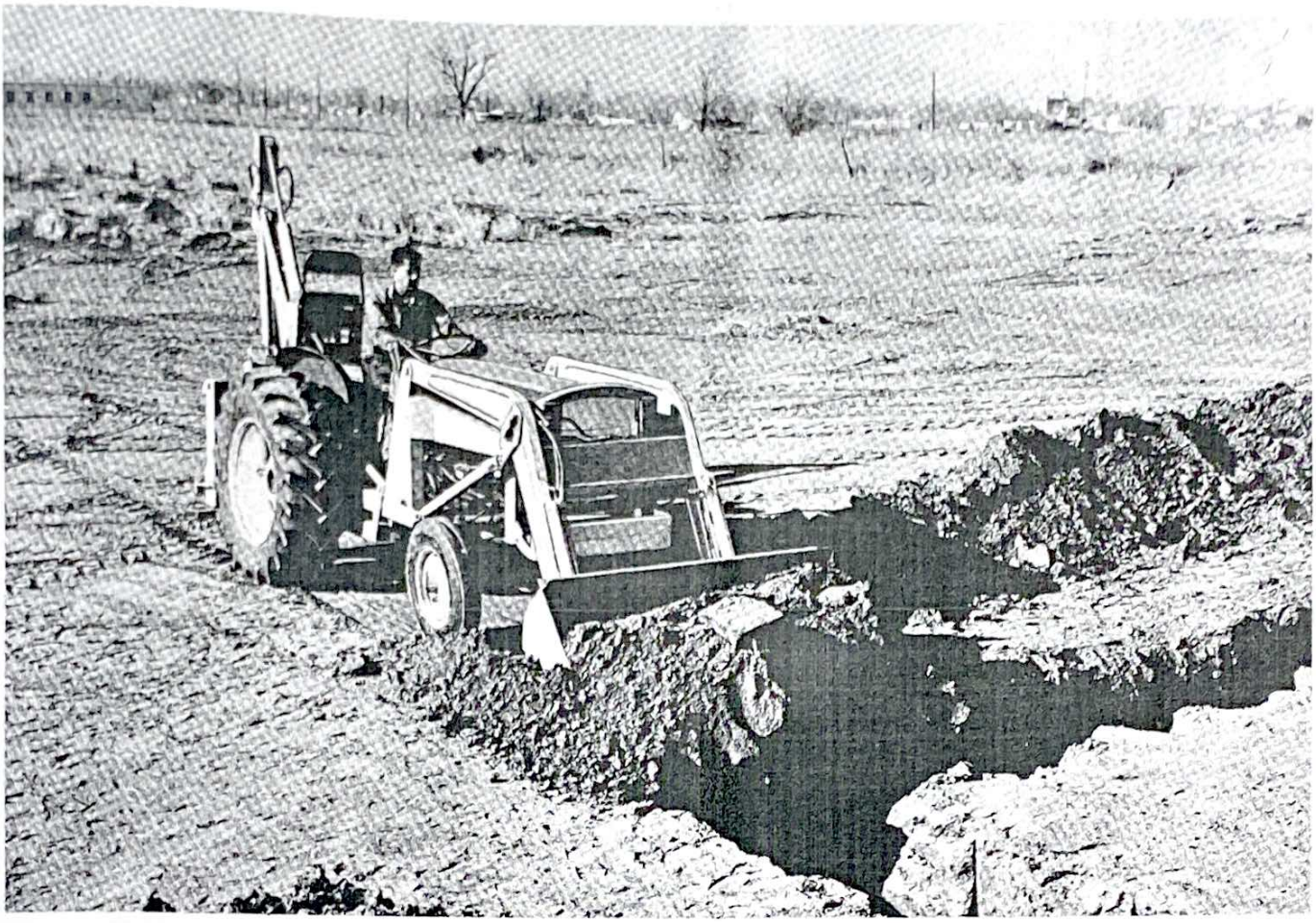


Fig. 2 - Loader Backfilling

TIPS ON EASIER LOADER OPERATION

1. Have sufficient weight on rear of tractor for traction.

2. Select proper gear to do the job. This can be done by a few trial runs.

3. When loading out of stock pile, do not depend entirely on forward motion of tractor; use the lift and bucket rams to get a full pay load.

4. When carrying load any great distance, especially over rough terrain, carry load low to avoid upsetting tractor.

5. Never approach stock pile with cutting edge of bucket fully exposed. Always work from a corner or a point in stock pile.

6. Accuracy and ease is more important than speed.

7. If additional traction is needed, apply down pressure with lift rams.

NOTE: Not available on 99 Loader.

8. When back filling a trench, always start at the end of spoil pile and with only about 1/2 to 2/3 of bucket exposed to spoil pile.

9. To eliminate dirt from spilling over back of bucket, the lift and bucket valve handles should work in unison to level the load as it is raised.

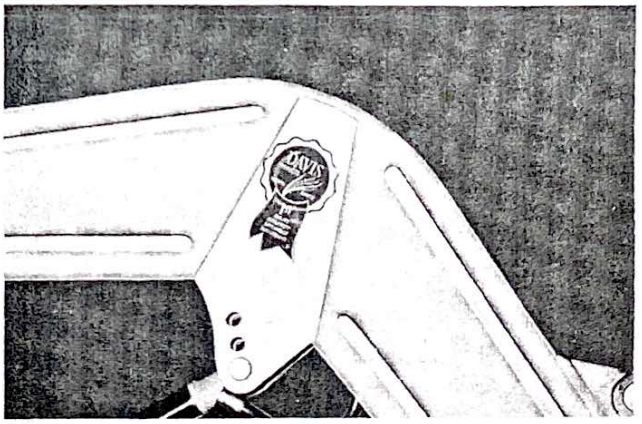
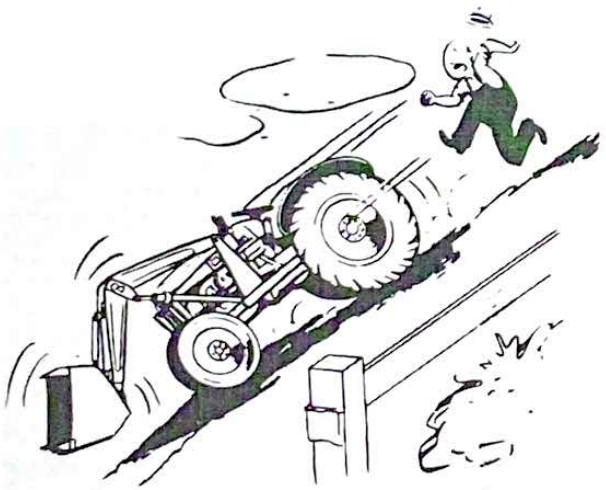


Fig. 3 - Adjusting Bucket Height

Fig. 4 - Model 99 Loader

ADJUSTING BUCKET HEIGHT

The three holes where lift cylinder attaches to the lift arms are for adjusting the bucket bite. Use the top hole for small diameter tires and the bottom hole for large diameter tires. It may be desirable to use the mid-point hole to give greater digging depth or a skimming action.



Always Set Brake Before Dismounting When Stopping on a Hill or Grade

MODEL 99 LOADER

The MF 99 Loader is applicable for agricultural and light industrial uses. Loader and lift arms are of box type heavy gauge steel construction. It is compact in design with a low silhouette, allowing operation in close quarters or low clearances. The control valve is designed for long life, having two close tolerance spools to keep the loader from creeping down.

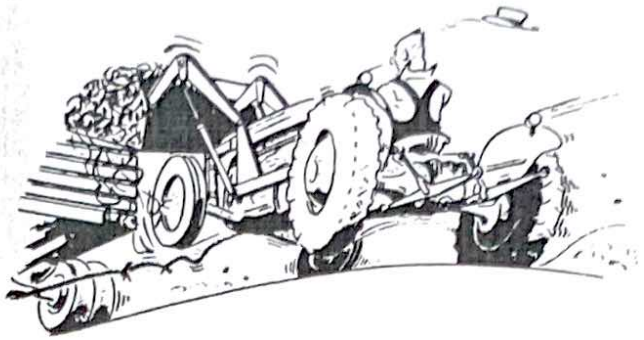
The hydraulic pump is a Cessna gear type with a 9.2 GPM capacity and an operating pressure of 2150 PSI.

Lift rams on the 99 are single-acting cylinders and do not have down pressure. The dump cylinder is a double-acting ram. All ram shafts are chrome plated to prevent rusting or denting.

The oil filter is a wire mesh screen to provide clean oil for the system. It is located in the reservoir at the point where the suction line is attached to the reservoir. THIS FILTER WILL HAVE TO BE REMOVED AND CLEANED. Clean after the first 10 hours and thereafter about every 60 hours, depending on operating conditions.

Attachments include buckets of different sizes and capacities; also dozers, manure fork and attachments and the push-off sweeprake stacker.

NOTE: This loader is not adaptable to a backhoe.



Careless Towing Methods are Very Dangerous

MODEL 102 LOADER

The 102 Loader is made of heavier steel; all pins and bushings are heat-treated for greater strength and longer life. Each bearing point features replaceable bushings.

Lift arms are double strength; this is achieved by a debossed design in the side arm plates. To give strength and rigidity, two bridge plates are located between the arms on the 102 Loader.

The hydraulic system is filtered through a replaceable sock type filter to insure the cleanest hydraulic system possible. Hydraulic pump is a Cessna gear type pump capable of producing up to 18 GPM and 2150 PSI. The valve is a cast iron valve body with two steel sleeve inserts. Spools are hardened and center ground. This gives smooth, positive control action and long valve life. A pressure relief valve is built into the valve and is preset at the factory for 2150 PSI.

Attachments for the 102 Loader include buckets of various widths and capacities, scarifiers for easier digging, manure fork attachments, dozers - straight or angle, lift fork tines, crane and push-off sweeprake stacker.

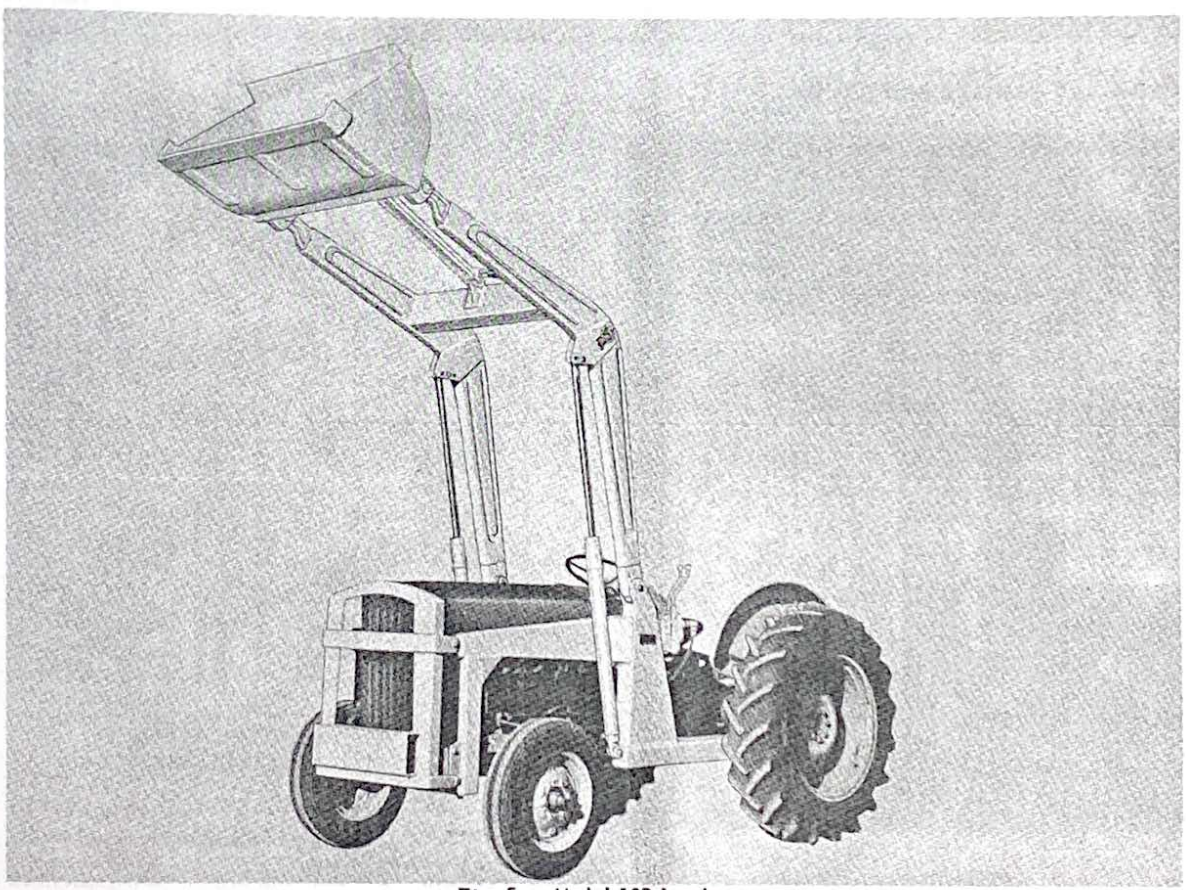


Fig. 5 - Model 102 Loader

SERVICING

HYDRAULIC OIL

Use type "A" automatic transmission fluid. Change every 500 hours of operation. Change more often under adverse, extremely dusty conditions.

CAUTION: Never leave the loader bucket in raised position to make adjustments or parked any length of time.

SERVICE OF PUMP

To replace seals, remove capscrews securing the dust plate and replace seals. These seals can be obtained as a kit from your dealer. We suggest that if your pump needs further repair that you take it to your dealer who is equipped to do this work.

SERVICE OF THE TWO-WAY DUMP CYLINDER

Unscrew and remove end plate.

Make certain there is no internal pressure inside of cylinder.

Tap bearing as far back away from lock ring as possible.

Remove bearing lock ring.

NOTE: Any internal pressure in cylinder will keep pressure on bearing and ring, making the ring difficult to remove.

The "O" rings will be damaged in removal of piston and bearing and must be replaced. An "O" ring makes a perfect seal if it is not damaged in installation — if damaged, it will almost invariably leak. Never use an old "O" ring; they are too inexpensive to run the risk of having to do the job over.

HYDRAULIC PUMP PRESSURE

The hydraulic relief valve is located in the bottom of the control valve. This valve is pre-

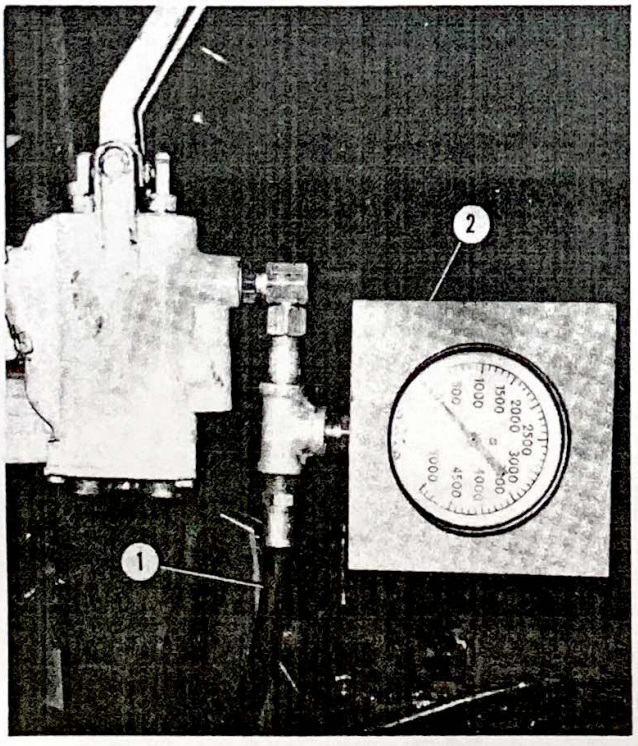


Fig. 6 - Hydraulic Pump Pressure

1. Pump Pressure Line
2. Pressure Gauge

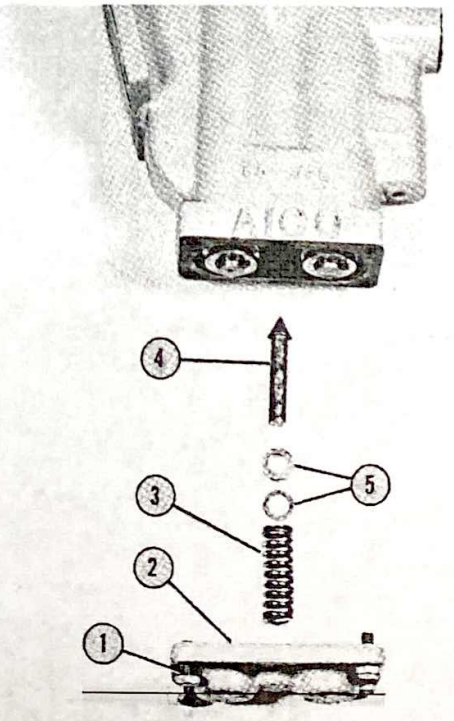


Fig. 7 - To Adjust Pressure

1. Capscrews
2. Cover
3. Relief Spring
4. Pressure Relief Cone
5. Shims

set by the manufacturer at 2150 PSI (Pounds per Square Inch). DO NOT RESET THIS VALVE IN EXCESS OF 2150 PSI. A higher relief valve setting may result in serious damage to the hydraulic system and to the machine.

To Check Pump Pressure, Proceed as Follows:

Make certain oil is up to oil level.

Operate all cylinders through several complete cycles to expel air from system. This must be done to get an accurate pressure reading.

SERVICE OF THE TWO-WAY LIFT CYLINDER

Remove cap from end of the cylinder and remove bearing.

NOTE: Make certain there is no internal pressure in the cylinder.

Remove bearing and piston rod.

When reassembling, use new "O" rings.

Lower bucket to ground and stop engine.

Work control levers back and forth to release any possible existing pressure in the high pressure line. Disconnect pump pressure line (1, Fig. 6) and install pressure gauge (2) as shown in Fig. 6. Start the engine and operate either the lift or dump lever until those cylinders reach the extreme end of travel or until the relief valve opens. At this point, observe the pressure reading on the pressure gauge.

To Adjust Pressure, Proceed as Follows:

Stop engine, remove four capscrews (1, Fig. 7) and remove lower cover (2), relief spring (3) and pressure relief cone (4).

To increase pressure — add shims (5, Fig. 7). To decrease pressure — remove shims.

One .010 shim should increase or decrease the pressure approximately 25 PSI.

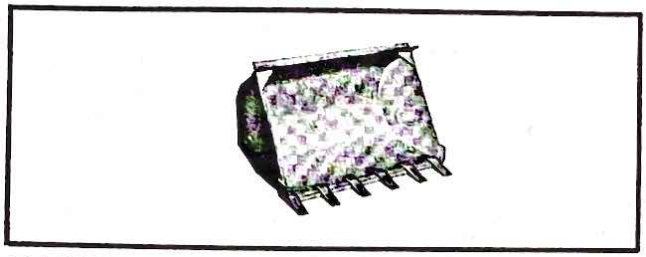
NOTE: Due to a slight variance in the tension of pressure relief springs, the above figures are approximate.

SERVICE POINTERS AND TROUBLE SHOOTING

Check Pressure Before Making any Check of the Hydraulic System (See Figure 6)

Trouble	Possible Cause	Possible Remedy
Pump Overheating and Noisy	1. Oil level low in reservoir.	1. Check oil level, add oil if necessary. Use only recommended oil.
	2. Contaminated oil.	2. Drain and replace oil and filter cartridge.
	3. Air leaking into hydraulic system.	3. Check hoses and connections — check filter cap gasket.
	4. Pump starving.	4. Check suction and return hoses for obstructions. Oil level low.
	5. Damaged or worn pump.	5. Remove and repair or replace.
Loader Arms not Holding Position	1. "O" rings or leather cups in lift cylinders damaged.	1. Replace damaged parts.
	2. Leak in lift circuit system.	2. Tighten fittings or replace parts.
	3. Damaged control valve or dirt clogging valve ports.	3. Examine parts carefully—replace worn or damaged items.
	4. Lift spool of valve not returning to center.	4. Check return spring and replace if necessary.
Loader Fails to Raise	1. Oil level low in reservoir, allowing air to enter system.	1. Check oil level, add oil if necessary. Use only recommended hydraulic oil.
	2. Improper oil (See Hydraulic Oil Recommendations.)	2. Use only recommended hydraulic oil.
	3. Obstruction in suction line.	3. Check line for kinks or collapsed hose.
	4. Key on pump shaft sheared.	4. Replace key.
Arms not Lifting Equally	1. Air in one lift cylinder.	1. Operate cylinder through several complete cycles until air is bled from system.
	2. Leak or restriction in hose.	2. Check hoses and filter for leaks — replace if necessary.
Loader has Slow or Eratic Lift	1. Oil level low in reservoir.	1. Check oil level — add oil as needed to oil level.
	2. Improper oil (See "Oil Specifications.")	2. Use only recommended hydraulic oil.
	3. Foaming oil.	3. Check intake hose for leaks. Use only recommended hydraulic oil.
	4. Breather very dirty.	4. Clean or replace breather cap.
	5. Leaking or restricted pressure hose.	5. Remove kink or obstruction — replace hose.
	6. Leaking or restricted suction hose.	6. Tighten clamps — remove kink or obstruction — replace hose.
	7. Air in lift cylinders.	7. Bleed air from system.
	8. Relief valve pressure setting too low.	8. Check and adjust, using high pressure gauge.
	9. Damaged or misaligned pump drive.	9. Align and replace worn parts.
	10. Damaged or worn pump.	10. Remove and repair or replace.
Bucket not Resting Level	1. Unequal tire pressure.	1. Check tire pressure, make certain tractor is level.
	2. Front attaching points not equal.	2. Check front attaching points, they should be equal distance from the floor on both sides.
Excessive Breakage of Hoses	1. Hoses improperly installed.	1. Make certain that all hoses are installed with no twist. Even a slight twist may cause it to fail after it has been under pressure several times.
	2. Relief valve pressure setting too high.	2. Check pressure setting of relief valve. Use high-pressure gauge. Do not set pressure in excess of 2150 P.S.I.

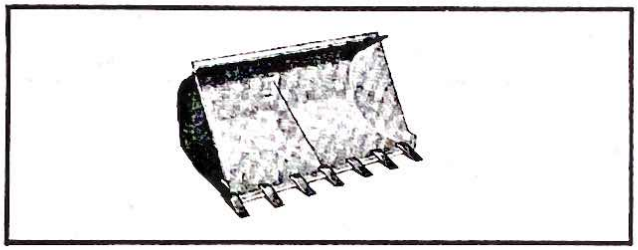
ATTACHMENTS



MATERIAL BUCKET

For Model 99 Loader

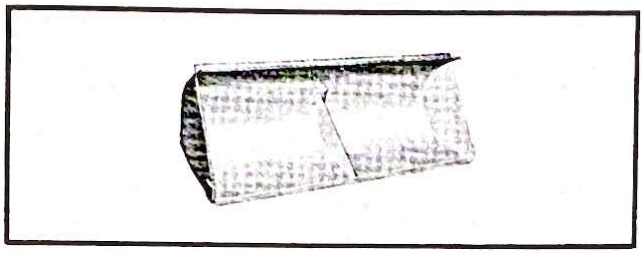
42" width, 9 cu. ft. capacity, high-carbon steel cutting edge. 6 replaceable teeth optional.



MATERIAL BUCKET

For Model 102 Loader

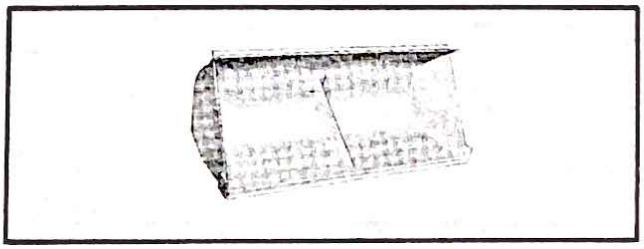
48" width, 11 cu. ft. capacity, high-carbon steel cutting edge. 7 replaceable teeth optional.



LANDSCAPE BUCKET

For Models 99-102 Loaders

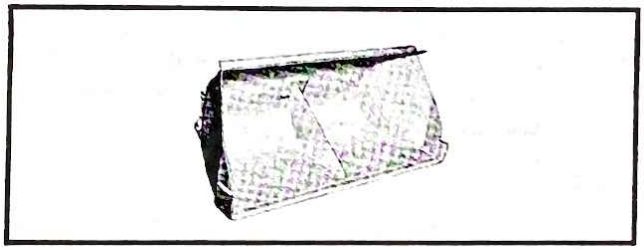
66" width, cuts wider than tractor. 11 cu. ft. capacity. High-carbon steel cutting edge.



UTILITY BUCKET

For Models 99-102 Loaders

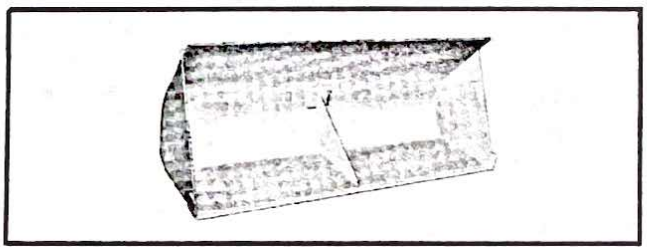
60" width. ½ cu. yd. capacity. High-carbon steel cutting edge. Used for lightweight aggregates, etc.



FLARE BUCKET

For Models 99-102 Loaders

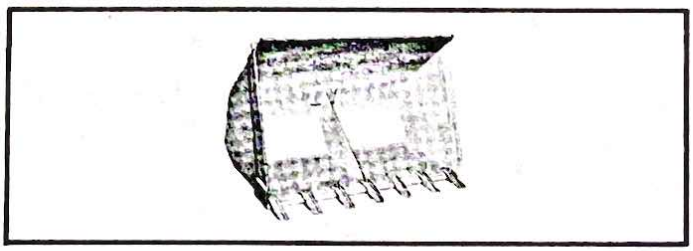
60"cutting edge of high-carbon steel, tapers back to 44". 12 cu. ft. capacity. Cuts as wide as tractor.



SNOW BUCKET

For Models 99-102 Loaders

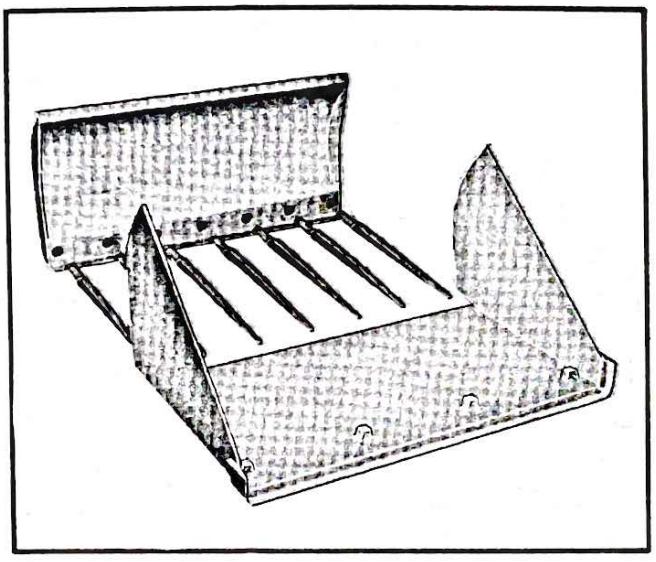
A big tool, giving maximum versatility for the Loader. Has 74"width with 1 cu. yd. capacity.



HEAVY-DUTY INDUSTRIAL BUCKET

For Model 102 Loader

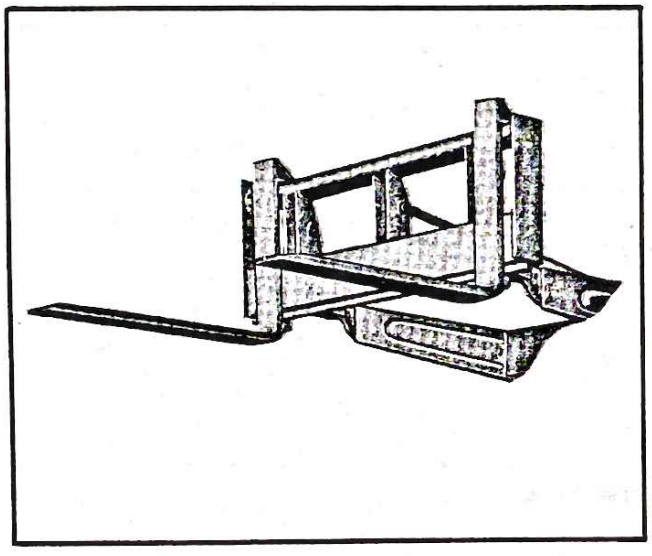
48" width, extra large 13 cu. ft. capacity. Has high-carbon steel cutting edge on bottom and both sides. Seven replaceable teeth.



MANURE FORK AND BUCKET

For Models 99-102 Loaders

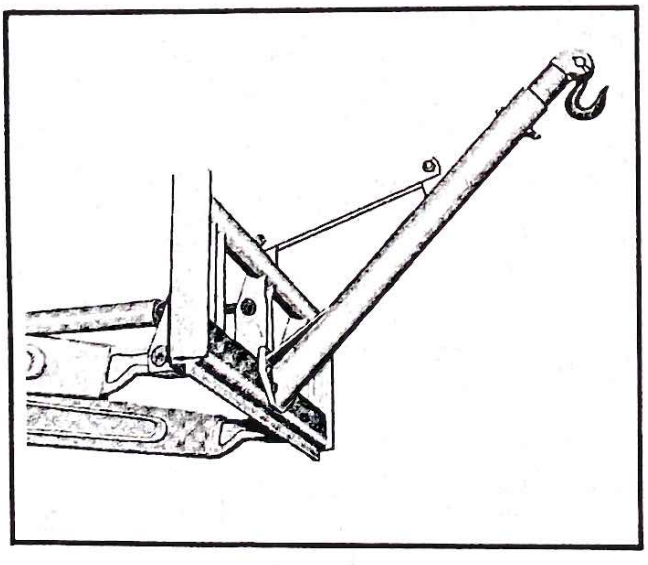
45" back with 7 replaceable drop-forged tines One-piece bottom and sides slide on to make all-purpose bucket.



LIFT FORK

For Models 99-102 Loaders

Has two adjustable 4" tines. Handles 1,000 lbs. Ideal for lumber, crates, palletized material. Crane attachment fits basic back.



CRANE ON LIFT FORK

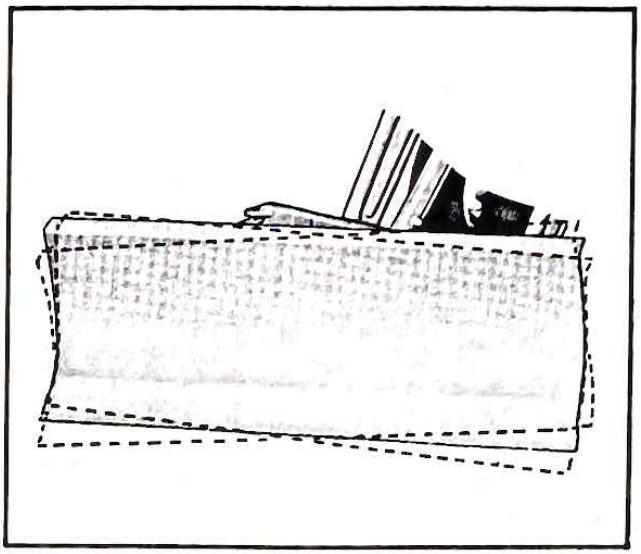
For Models 99-102 Loaders

Low-cost crane attachment fits directly on basic lift fork back. 3-hole adjustment from 44" to 72".

ANGLE DOZER

For Models 99-102 Loaders

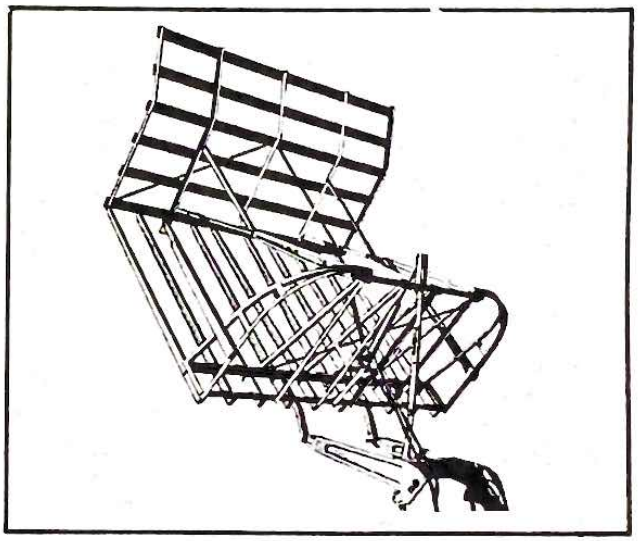
Angle Dozer has 3 off-set adjustments. Hydraulically controlled bite. 72" blade; 28" mould board height. Straight dozer also available.



PUSH-OFF SWEEPRAKE STACKER

For Models 99-102 Loaders

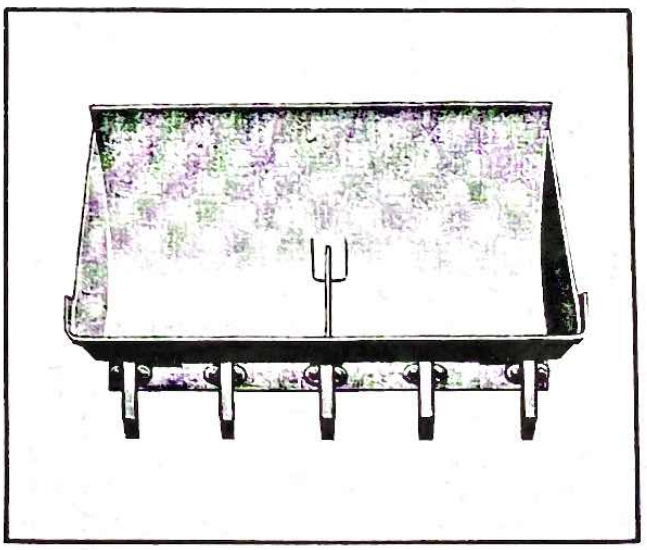
Tops out 21' stacks. Has hydraulic push-off. Capacity of 600 lbs. or more if tractor is counterbalanced.



SCARIFIER

For Model 102 Loader

Five replaceable high-carbon teeth soften the soil for easier digging. Attaches to bucket pivot points on loader arms.



SPECIFICATIONS
MODEL 99 LOADER

PUMP

Type:
Gear, Constant Flow, Cessna

Capacity:
9.2 G.P.M. (Gallons per Minute) 2150 PSI at 2000 RPM

VALVE

Type:
Two-spool, single-acting lift spool and double-acting dump spool

Pressure Relief
Cone and spring - 2150 PSI maximum

FILTER

Type:
Mesh Screen
Hydraulic System Capacity - 4 gal. approx.

HOSES

Suction Hose
1 in. I.D.

Pressure Hoses
SAE Standard

LIFT CYLINDERS

Type:
"O" Ring Seal, Single-Acting Displacement
Bore 1-7/8" Stroke 31" Rod Dia. 1-7/8"

DUMP CYLINDERS

Type:
"O" Ring Piston, Double-Acting
Bore 2-1/2" Stroke 15-3/16"
Rod Dia. 1-1/4"

GENERAL

Shipping Weight (less bucket) - 716 lbs. approx.
Counterweight - Wheel weights (tractor accessory

Lifting Capacity:

Full Height	1800 lbs.
Carrying Capacity (3' height)	2300 lbs.
Breakaway Capacity	3000 lbs.

Maximum clearance at maximum height	9 ft. 11 in.
Reach at maximum height, measured from front extremity of tractor, bucket dumped at 38 degrees	98 inches
Reach, bucket on ground, measured from centerline of front wheels	73 inches
Bucket Rollback (at ground level)	17 degrees
Maximum Dumping Angle	38 degrees
Digging Depth Capacity	4 inches
Turning Clearance Circle	31 ft. dia. w/42 inch bucket
Cycle Time, Up	5 seconds
Cycle Time, Down	4 seconds
Bucket Dumping Time	2.5 seconds

CAPACITY BUCKETS

Material	10 cu. ft.	42 in. wide
Utility	14 cu. ft.	60 in. wide
Landscape	13 cu. ft.	66 in. wide
Snow	3/4 cu. ft.	74 in. wide
Tapered	13 cu. ft.	60-66 in. wide

ATTACHMENTS

Push-off Stacker
Width - 10 ft.
Depth - 7 ft.
Push-off Height - 17 ft.
Stacking Height - 21 ft.
Capacity 600 lbs. (more if tractor is counterbalanced)

Dozer (Straight)
Length, Blade: 60 in.
Height, Moldboard: 28 in.
Adjustments: Offsets 7 in. each side tractor

Dozer (Angle)
72 in. wide

Lift Fork
Capacity: 1000 lbs. Adjustable Tines

Crane—Attachment for Lift Fork
Length, arm adjustable 44 in. to 72 in.
Capacity: 1000 lbs.
Height, Lift - 15 ft. 6 in.

Manure Fork With or Without Scoop
Width: 45 in.

MODEL 102 LOADER

PUMP

Type:
Constant Flow Cessna

Capacity:
17 G. P. M. at 2000 RPM at 2150 PSI

VALVE

Type:
Two-spool, Double-Acting Life and Dump Spools

Pressure Relief
Cone and Spring - 2150 PSI maximum

FILTER

Type:
Mesh Screen using Sock Type Cartridge

Hoses
SAE Standard

Lift Cylinders

Type:
Piston Type, Double-Acting
Bore 2-1/4" Stroke 31" Rod Dia. 1-1/4"

GENERAL (Mtd. on MF 200 Series Tractors)

Shipping Weight (less bucket)	850 lbs. approx.

Lifting Capacity:

Full Height (calculated)	2700 lbs. approx.
Carrying Capacity at 3 ft. Height (calculated)	3400 lbs. approx.
Breakaway Capacity (calculated)	4300 lbs. approx.
Maximum Clearance at Maximum Height	9 ft. 11 in.
Reach at Maximum Height	2 ft. 2 in.
Clearance, Bucket Dumped at 38 Degrees	8 ft. 2 in.
Bucket Roll-Back (at ground level)	17 degrees
Maximum Dumping Angle	38 degrees
Digging Depth Capacity	4 inches
Turning Clearance Circle	32 ft. dia. w/48 inch bucket
Cycle Time, Up	4 seconds
Cycle Time, Down	3 seconds
Bucket Dumping Time	2.5 seconds

CAPACITY BUCKETS

Material	11 cu. ft.	48 in. wide
Utility	14 cu. ft.	60 in. wide
Landscape	13 cu. ft.	66 in. wide
Snow	3/4 cu. ft.	74 in. wide
Heavy Duty	12 cu. ft.	48 in. wide
Tapered	13 cu. ft.	60-66 in. wide

ATTACHMENTS

Push-off Sweeprake Stacker
Width: 10 ft.
Depth: 7 ft.
Push-off Height: 17 ft.
Stacking Height: 21 ft.
Capacity: 600 lbs. (more if tractor is counterbalanced)

Dozer (Straight)
Length, Blade: 60 in.
Height, Moldboard: 24 in.
Operating Position Below Ground Level: 2 in.

Dozer (Angle)
Length, Blade: 72 in.
Height, Moldboard: 28 in.
Adjustments - Offsets 7 in. (each side of tractor)

Lift Fork
Capacity: 1000 lbs. (adjustable tines)

Crane (for Fork and Crane Back)
Length, Arm: 44-72 in. (adjustable)
Capacity: 1000 lbs.
Height, Lift: 15 ft. 6 in.

Manure Fork
Width: 45 in.
Number of Tines: 7

Manure Fork Bucket
Width: 45 in. Slips over Tines

Scarifier
For use with 48 in. Bucket